

**An interplay between spatially separated Fermi and Bose subsystems
and superconductivity in perovskite-like oxides***

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A new scenario for the insulator-metal phase transition and the superconductivity in the perovskite-like bismuthates $\text{Ba}_{1-x}\text{K}_x\text{BiO}_3$ (BKBO) based on our EXAFS - studies is proposed. We have shown that two types of the charge carriers: the local pairs (real-space bosons) and the itinerant electrons exist in the metallic $\text{Ba}_{1-x}\text{K}_x\text{BiO}_3$ ($x \geq 0.37$). The real-space bosons are responsible for both the charge transport in the semiconducting BaBiO_3 and the superconductivity in the metallic BKBO. The appearing of the Fermi-liquid state at the percolation threshold overcoming ($x \geq 0.37$) explains the observed insulator-metal phase transition. Bosons and fermions occupy different types of the octahedral BiO_6 complexes, so they are separated in real space and a new type of spatially separated Fermi-Bose mixture is likely to be realized in bismuthates. A new superconducting oxide $\text{Ba}_{1-x}\text{La}_x\text{PbO}_3$ has been successfully synthesized to check our conclusions. The likeness of the local peculiarities of BiO_6 and CuO_n complexes observed by us for $\text{Nd}_{2-x}\text{Ce}_x\text{CuO}_4$ compounds allows one to discuss the applicability of this scenario for the high- T_c cuprates.

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